

REMARKS:

Claims 1-16 are pending in the present application.

The indication by the Examiner that claims 4-6 and 12-14 set forth allowable subject matter is noted with appreciation.

The Office Action includes the following rejections:

- Claims 2 and 10 under 35 U.S.C. § 112, first paragraph;
- Claims 1, 15, and 16 under 35 U.S.C. § 102(b) over U.S. Patent No. 3,228,478 to Edenborough (“Edenborough”);
- Claims 2 and 10 under 35 U.S.C. § 103(a) over Edenborough in view of U.S. Patent No. 3,217,809 to Bossler (“Bossler”);
- Claims 3, 7, and 8 under 35 U.S.C. § 103(a) over Edenborough in view of U.S. Patent No. 4, 025,230 to Kastan (“Kastan”);
- Claim 9 under 35 U.S.C. § 103(a) over Edenborough in view of U.S. Patent No. 3,118,504 to Cresap (“Cresap”); and
- Claim 11 under 35 U.S.C. § 103(a) over Edenborough in view of Cresap, and further in view of Kastan.

These rejections are respectfully traversed as follows.

CLAIM OBJECTION:

The Office Action includes an objection to claims 4-6 and 12-14 as being dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

For reasons discussed below, independent claims 1 and 9 are considered to be in condition for allowance. Claims 4-6 depend from claim 1 and claims 12-14 depend from claim 9. Therefore, Applicants respectfully submit that claims 4-6 and 12-14 depend from allowable claims, so rewriting claims 4-6 and 12-14 in independent form would involve

unnecessary expense and effort. It is therefore respectfully requested that the objection to claims 4-6 and 12-14 be reconsidered and withdrawn.

REJECTIONS UNDER 35 U.S.C. § 112:

Claims 2 and 10 presently stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement.

First, it is respectfully submitted that the Office Action fails to establish a *prima facie* case of failure to comply with the enablement requirement.

The test for determining whether a claimed invention is properly enabled by the specification has been well-established: "Is the experimentation needed to practice the invention undue or unreasonable?"¹ The MPEP provides several factors for making an analysis of the undue experimentation question:

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to:

- (A) The breadth of the claims;
- (B) The nature of the invention;
- (C) The state of the prior art;
- (D) The level of one of ordinary skill;
- (E) The level of predictability in the art;
- (F) The amount of direction provided by the inventor;
- (G) The existence of working examples; and
- (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure.²

The MPEP clearly states that each of these factors should be considered when making an analysis of undue experimentation:

It is improper to conclude that a disclosure is not enabling based on an analysis of only one of the above factors while ignoring one or more of the others. The examiner's analysis must consider all the evidence related to

¹ MPEP 2164.01, citing *Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916), and *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

² MPEP 2164.01(a).

each of these factors, and any conclusion of nonenablement must be based on the evidence as a whole.³

Thus, based on the guidelines set forth in the MPEP, a proper analysis should be based on evidence related to each of the above factors. However, the Office Action includes none of the analysis required by the MPEP. The MPEP requires that evidence related to each of the above factors *must* be considered; however, the Office Action fails to mention even one of these factors, and certainly provides no reasoning or analysis based on each of the factors.

It is also well-established that the Examiner bears the initial burden of providing the appropriate support for establishing a *prima facie* case in rejecting an application. As stated by the Federal Circuit, “[i]f examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent.”⁴ Since the Office Action fails to provide any of the requisite analysis for supporting this rejection, it is respectfully submitted that the rejection is improper and should be withdrawn.

Notwithstanding the above, support for claims 2 and 10 can be found throughout the specification. For example, the detailed description of Figures 4 and 5 on pages 6 and 7 of the specification includes support for claims 2 and 10.

In light of the discussion above, it is respectfully requested that the rejection of claims 2 and 10 under 35 U.S.C. § 112 be reconsidered and withdrawn.

REJECTIONS UNDER 35 U.S.C. § 102:

Claims 1, 15, and 16 presently stand rejected under 35 U.S.C. § 102(b) over Edenborough. Because Edenborough does not disclose all of the limitations of claims 1, 15, and 16, it is respectfully submitted that claims 1, 15, and 16 are patentable over the cited art.

³ *Id.*, referencing *In re Wands*, 858 F.2d 731, 737, 740, 8 USPQ2d 1400, 1404, 1407 (Fed. Cir. 1988).

⁴ *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

With respect to claim 1, Applicants respectfully disagree with the Office Action for at least the following reasons:

- The links of the control system disclosed in Edenborough are not coupled together as recited in claim 1; and
- Edenborough fails to disclose the claimed selected outputs.

Both of these points are discussed in greater detail below.

Regarding the first point, Edenborough discloses an aircraft control system that includes a number of links, but the links are not coupled as recited in claim 1. For example, claim 1 recites a torque tube that is pivotally coupled to a forward-aft output link and also pivotally coupled to a stepped mixing linkage, which in turn is pivotally coupled to a lateral output link, which in turn is pivotally coupled to a left-right output link.

In contrast, Edenborough discloses forward-aft output linkage that connects directly to the cyclic, and left-right output linkage that separately connects directly to the cyclic. (Edenborough, Fig. 1 and Col. 3, line 56) As such, Edenborough fails to disclose or even suggest a torque tube (or link or other such structure) that is pivotally coupled to a forward-aft output link and also pivotally coupled to a stepped mixing linkage, which is, in turn, pivotally coupled to a lateral output link, which is, in turn, pivotally coupled to a left-right output link. For at least this reason, Edenborough fails to anticipate claim 1.

Regarding the second point, claim 1 recites the generation of a selected *lateral* sinusoidal output (as well as other outputs) in response to each forward-aft cyclic input command.

In contrast, Edenborough is completely silent with respect to any lateral output in response to a forward-aft input. As such, Edenborough fails to disclose or suggest the more specific limitation of a lateral sinusoidal output in response to a forward-aft cyclic input command. For at least this additional reason, Edenborough fails to anticipate claim 1.

With respect to claims 15 and 16, these claims include limitations similar to those discussed above from claim 1. Accordingly, the arguments presented above in connection with claim 1 apply equally to claims 15 and 16.

Accordingly, it is respectfully requested that the rejection of claims 1, 15, and 16 under 35 U.S.C. 102(b) be reconsidered and withdrawn.

REJECTIONS UNDER 35 U.S.C. § 103:

Claim 9

Claim 9 presently stands rejected under 35 U.S.C. § 103(a) over Edenborough in view of Cresap. Because the proposed combination of Edenborough and Cresap does not disclose or suggest all of the limitations of claim 9, it is respectfully submitted that claim 9 is patentable over the cited art.

Claim 9 recites, in part, a control system that comprises a torque tube that is pivotally coupled to a forward-aft output link and also pivotally coupled to a stepped mixing linkage, which in turn is pivotally coupled to a lateral output link, which in turn is pivotally coupled to a left-right output link.

As pointed out above, Edenborough fails to disclose or even suggest a torque tube (or link or other such structure) that is pivotally coupled to a forward-aft output link and also pivotally coupled to a stepped mixing linkage, which is, in turn, pivotally coupled to a lateral output link, which is, in turn, pivotally coupled to a left-right output link. Cresap also fails to disclose or suggest a torque tube (or link or other such structure) that is pivotally coupled to a forward-aft output link and also pivotally coupled to a stepped mixing linkage, which is, in turn, pivotally coupled to a lateral output link, which is, in turn, pivotally coupled to a left-right output link. Thus, for at least this reason, even if Edenborough and Cresap were properly combinable as proposed in the Office Action, the resulting combination would still fail to disclose or suggest all of the limitations of claim 9.

Claim 9 also recites the generation of a selected *lateral* sinusoidal output (as well as other outputs) in response to each forward-aft cyclic input command.

As pointed out above, Edenborough fails to disclose or suggest generation of a lateral sinusoidal output in response to a forward-aft cyclic input command. Cresap fails to cure this deficiency. For at least this additional reason, even if Edenborough and Cresap were properly combinable as proposed in the Office Action, the resulting combination would still fail to disclose or suggest all of the limitations of claim 9.

Accordingly, it is respectfully requested that the rejection of claim 9 under 35 U.S.C. 103(a) be reconsidered and withdrawn.

Claims 2 and 10

Claims 2 and 10 presently stand rejected under 35 U.S.C. § 103(a) over Edenborough in view of Bossler. Because the proposed combination of Edenborough and Bossler does not disclose or suggest all of the limitations of claims 2 and 10, it is respectfully submitted that claims 2 and 10 are patentable over the cited art.

Claim 2 depends from claim 1 and claim 10 depends from claim 9. As discussed above, Edenborough fails to disclose or suggest all of the limitations of claims 1 and 9. Bossler fails to cure all of these deficiencies. Thus, even if Edenborough and Bossler were properly combinable as proposed in the Office Action, the resulting combination would still fail to disclose or suggest all of the limitations of claims 2 and 10.

Accordingly, it is respectfully requested that the rejection of claims 2 and 10 under 35 U.S.C. 103(a) be reconsidered and withdrawn.

Claims 3, 7, and 8

Claims 3, 7, and 8 presently stand rejected under 35 U.S.C. § 103(a) over Edenborough in view of Kastan. Because the proposed combination of Edenborough and Kastan does not disclose or suggest all of the limitations of claims 3, 7, and 8, it is respectfully submitted that claims 3, 7, and 8 are patentable over the cited art.

Claims 3, 7, and 8 depend from claim 1. As discussed above, Edenborough fails to disclose or suggest all of the limitations of claim 1. Kastan fails to cure all of these deficiencies. Thus, even if Edenborough and Kastan were properly combinable as

proposed in the Office Action, the resulting combination would still fail to disclose or suggest all of the limitations of claims 3, 7, and 8.

Accordingly, it is respectfully requested that the rejection of claims 3, 7, and 8 under 35 U.S.C. 103(a) be reconsidered and withdrawn.

Claim 11

Claim 11 presently stands rejected under 35 U.S.C. § 103(a) over Edenborough in view of Cresap, and further in view of Kastan. Because the proposed combination of Edenborough, Cresap, and Kastan does not disclose or suggest all of the limitations of claim 11, it is respectfully submitted that claim 11 is patentable over the cited art.

Claim 11 depends from claim 9. As discussed above, Edenborough fails to disclose or suggest all of the limitations of claim 9. Kastan and Cresap fail to cure all of these deficiencies. Thus, even if Edenborough, Cresap, and Kastan were properly combinable as proposed in the Office Action, the resulting combination would still fail to disclose or suggest all of the limitations of claim 11.

Accordingly, it is respectfully requested that the rejection of claim 11 under 35 U.S.C. 103(a) be reconsidered and withdrawn.

CONCLUSION:

In view of the foregoing remarks, this application is considered to be in condition for allowance, and early reconsideration and a Notice of Allowance are earnestly solicited.

The undersigned hereby authorizes the Director to charge any other fees that may be required, or credit any overpayments, to **Deposit Account No. 502806**. If an extension of time needed for allowing this Response to be timely filed, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) to the extent necessary. Any fee required for such Petition for Extension of Time should be charged to **Deposit Account No. 502806**.

Please link this application to Customer No. 38441 so that its status may be checked via the PAIR System.

Respectfully submitted,

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